Claims

What is claimed is:

1. A method, comprising:

correlating a stream of received samples with a correlation word, said stream having a first base rate of said received samples per received symbol, said stream having a first fractional rate of said received samples per received symbol, said correlation word having a first base rate of looked-for samples per received symbol, said correlation word having a first fractional rate of looked-for samples per received sample, said first base rate of received samples equal to said base rate of looked-for samples, said first fractional rate of received samples greater than said first fractional rate of looked-for samples.

2. The method of claim 1 wherein said stream further comprises a stream of binary samples.

3. The method of claim 1 further comprising decimating at a decimations rate a second stream of received samples to produce stream of received samples.

4. The method of claim 2 wherein said decimation rate further comprises a decimation rate of 2:1.

5. The method of claim 4 wherein said second stream of received samples is formed with an 8:1 oversampling rate.

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6. The method of claim 2 wherein said decimation rate further comprises a decimation rate of 3:1.

7. The method of claim 6 wherein said second stream of received samples is formed with a 13:1 oversampling rate.

8. The method of claim 1 wherein said stream of received samples further comprises a repeating sampling pattern of 5, 4 and 4 samples per received symbol.
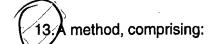
9. The method of claim 8 wherein said correlation word further comprises a repeating sampling pattern of 5, 4, 4, and 4 samples per received symbol.

10. The method of claim 1 wherein said stream of received samples further comprise samples of a received BLUETOOTH synchronization word.

11. The method of claim 1 wherein said first base rate of received samples and said base rate of looked-for samples are both equal to 4 samples per received symbol. an per looked for symbol respectively

12. The method of claim 1 wherein said first fractional rate of received samples is 1 sample per 3 received symbols and said first fractional rate of looked-for samples is 1 sample per 4 looked for symbols.
raised

13. A method, comprising:

correlating a stream of received samples with a correlation word, said stream having a first base rate of said received samples per received symbol, said stream having a first fractional rate of said received samples per received symbol, said correlation word having a first base rate of looked-for samples per received symbol, said correlation word having a first fractional rate of looked-for samples per received sample, said correlation word having a second fractional rate of looked-for samples per received sample, said first base rate of received samples equal to said base rate of looked-for samples, said first fractional rate of received samples greater than said first fractional rate of looked-for samples, said first fractional rate of received samples greater than said second fractional rate of looked-for samples.

14. The method of claim 13 wherein said stream further comprises a stream of binary samples.

15. The method of claim 13 further comprising decimating at a decimation rate a second stream of received samples to produce stream of received samples.

16. The method of claim 15 wherein said decimation rate further comprises a decimation rate of 2:1.

17. The method of claim 16 wherein said second stream of received samples is formed with an 8:1 oversampling rate.

18. The method of claim 15 wherein said decimation rate further comprises a decimation rate of 3:1.

19. The method of claim 18 wherein said second stream of received samples is formed with a 13:1 oversampling rate.

20. The method of claim 13 wherein said stream of received samples further comprises a repeated sampling pattern of 5, 4 and 4 samples per received symbol.

21. The method of claim 20 wherein said correlation word further comprises a repeated sampling pattern of 5, 4, 4, and 4 samples per received symbol.

22. The method of claim 13 wherein said correlation word is bit stuffed such that the summation of said first and said second fractional rates of looked-for samples is equal to said first fractional rate of received samples.

23. The method of claim 13 wherein said stream of received samples further comprise samples of a received BLUETOOTH synchronization word.

24. The method of claim 13 wherein said first base rate of received samples and said base rate of looked-for samples are both equal to 4 samples per received symbol.

25. The method of claim 13 wherein said first fractional rate of received samples is 1 sample per 3 received symbols and said first fractional rate of looked-for samples is 1 sample per 4 looked for symbols.

26. An apparatus, comprising:

a correlator unit that correlates a stream of received samples with a correlation word, said stream having a first base rate of said received samples per received symbol, said stream having a first fractional rate of said received samples per received symbol, said correlation word having a first base rate of looked-for samples per received symbol, said correlation word having a first fractional rate of looked-for samples per received sample, said first base rate of received samples equal to said base rate of looked-for samples, said first fractional rate of received samples greater than said first fractional rate of looked-for samples.

27. The apparatus of claim 26 further comprising a decimator that provides said stream of received samples to said correlator unit, said decimator applying a decimation rate to a second stream of samples which are provided to said decimator.

28. The apparatus of claim 27 further comprising a slicer that provides said second stream of received samples to said decimator.

29. The apparatus of claim 27 wherein said decimation rate further comprises a decimation rate of 2:1.

30. The apparatus of claim 29 wherein said second stream of received samples is formed with an 8:1 oversampling rate.

31. The apparatus of claim 27 wherein said decimation rate further comprises a decimation rate of 3:1.

32. The apparatus of claim 31 wherein said second stream of received samples is formed with a 13:1 oversampling rate.

33. The apparatus of claim 26 wherein said stream of received samples further comprises a repeating sampling pattern of 5, 4 and 4 samples per received symbol.

34. The apparatus of claim 33 wherein said correlation word further comprises a repeating sampling pattern of 5, 4, 4, and 4 samples per received symbol.

35. The apparatus of claim 26 wherein said correlation word is stored in a storage resource that is accessible to said correlator unit.

36. The apparatus of claim 35 wherein said storage resource further comprises a register.

37. The apparatus of claim 35 wherein said storage resource further comprises a memory cell.

38. The apparatus of claim 26 wherein said stream of received samples further comprise samples of a received BLUETOOTH synchronization word.

39. The apparatus of claim 26 wherein said first base rate of received samples and said base rate of looked-for samples are both equal to 4 samples per received symbol.

40. The apparatus of claim 26 wherein said first fractional rate of received samples is 1 sample per 3 received symbols and said first fractional rate of looked-for samples is 1 sample per 4 looked for symbols.

41. A method, comprising:

correlating a stream of received samples with a correlation word, said stream having one of a plurality of different possible received sampling pattern phases, said correlation word corresponding to a sampling of looked-for symbols, said sampling of looked for symbols having a sampling pattern constructed with different components, wherein each of said components represents one of said different possible received sampling pattern phases.

42. The method of claim 41 wherein said stream of received samples corresponds to a received baseband signal that is oversampled at a rate of 13:1, decimated at a rate of 3:1 and sliced so as to produced binary samples.

43. The method of claim 41 wherein said different possible received sampling pattern phases are 544..., 454..., and 445....

44. The method of claim 43 wherein said different sampling pattern components are 544, 454 and 445.

abc

45. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 544 454 445.

$$\frac{+}{abc} \checkmark$$

46. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 445 454 544.

cba ✓

47. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 454 544 445.

bac ✓

48. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 445 544 454.

cab ✓

49. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 544 445 454.

acb ✓

50. The method of claim 44 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 454 445 544.

bca ✓

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51. An apparatus, comprising:

a correlator unit that correlates a stream of received samples with a correlation word, said stream having one of a plurality of different possible received sampling pattern phases, said correlation word corresponding to a sampling of looked-for symbols, said sampling of looked for symbols having a sampling pattern constructed with different components, wherein each of said components represents one of said different possible received sampling pattern phases.

52. The appratus of claim 51 wherein said stream of received samples corresponds to a received baseband signal that is oversampled at a rate of 13:1, decimated at a rate of 3:1 and sliced so as to produced binary samples.

53. The appratus of claim 51 wherein said different possible received sampling pattern phases are 544, 454, and 445.

54. The apparatus of claim 53 wherein said different sampling pattern components are 544, 454 and 445.

55. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 544 454 445.

56. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 445 454 544.

57. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 454 544 445

58. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 445 544 454.

59. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 544 445 454

60. The apparatus of claim 54 wherein said sampling pattern constructed with different components further comprises a repeating pattern of 454 445 544